Removing Barriers to Online and Collaborative Postsecondary Education

A report for Industry Canada

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"Canada is in the unique position of being a country with all of the pieces available to build, deliver and populate some of the world's best elearning solutions"

Canaccord Capital, eLearning -- Special Industry Report, June, 2000

But...

Will we use that advantage or lose it???

Executive Summary

Universities, Colleges, private trainers and corporations are confronting the challenges of a new role as providers of online education. Because of the extra cost of developing high quality electronic materials, many institutions are also seeking to form consortia to share development, marketing and administrative expenses.

Although the desired outcome -- quality education and training -- is familiar to our institutions, the methods and implementation processes provide some unique and daunting obstacles. This report focuses on the hurdles that traditional educational institutions, especially Canadian Colleges and Universities, must overcome now to succeed in this field.

Whether or not Universities and Colleges *should* involve themselves in online or collaborative learning, and/or take a "market driven" approach to education, is a policy issue that is beyond the scope of this report. What is considered here is how to accomplish those goals within the existing institutional framework, while minimizing any negative impacts.

These barriers can be divided into several major categories:

- Academic governance
- Student Access and Acceptance
- Human Resources
- Intellectual Property
- Technical Issues
- Concerns about quality
- Fear of loss of reputation

This report, which is based on interviews, web pages, and the author's experience in the field, is intended to outline the issues and provide at least some suggestions for addressing them in a way that protects the core mission of our educational institutions while allowing them to participate in this New Economy of online and collaborative learning. The opinions expressed in this report are the author's and not necessarily those of Industry Canada or any other institution. The author is aware that there are many other examples of innovative approaches in Canada, and the ones selected are

merely indicative of promising approaches. Further details on many of these topics are available on request from Keenan@ucalgary.ca

It should also be noted that all of these problems are eminently solvable if we strongly resolve to do so. A few years ago, the goal of connecting all of Canada's schools to the Internet was viewed by many as a pipedream. Even the Prime Minister, as recently as 1998, saw this as an ambitious undertaking:

> Our goal has been to link every school and every public library in Canada to the Internet. Look where we started in 1994. Zero. By 1995 we had linked 3,000 schools. By 1996, 7,000. By the end of last year, more than 13,000. And by the end of this year, we will have linked up every one of the 16,500 schools in Canada, and all of the 3,400 public libraries.
> Prime Minister Jean Chretien speaking at Federation of Canadian Municipalities, June 8, 1998, Regina, Saskatchewan

That milestone was accomplished through the joint efforts of government (notably Industry Canada through Schoolnet,) institutions (schools and school boards,) and the private sector. It may well take a similar mobilization of resources to position Canada effectively in the online learning world. In the author's opinion, it is unthinkable that we would just stand by and let our natural advantages in online education evaporate. Failure to show timely leadership here will almost inevitably result in a colonization of online education in Canada, with intellectual control, and the hoped-for profits, flowing out of the country.

1.0 The Main Administrative and Infrastructure Challenges

1.1 Academic Governance

In many ways, this is a *sine qua non* issue for public institutions. If online education or collaborative educational programming is not viewed as a worthy academic enterprise, the governing bodies on most campuses have ample power to kill it or slow it down so much that it will never succeed.

The very structure that has protected the vitality and integrity of Universities for centuries can leave them almost paralyzed in the face of fast-changing marketplace demands. If an institution cannot develop an appropriate governance structure, it may well be unable to carry out effective online education. For example, one University–based continuing education program in software technology changes its curriculum more frequently (every six months) than the relevant approving curriculum committee even meets (annually.) So even if they considered changes to this particular program at every meeting, they would not be able to keep up with the pace of the program's market-driven evolution. The program has coped by requesting "after the fact" approval of curriculum changes, which raises concerns about pre-empting the role of the committee.

Most Canadian Universities and Colleges have a bicameral governance system in which a Board of Governors (possibly with a different name) shares ultimate authority with a body that is predominantly composed of academics. This harkens back to the historical image of a begowned professorate who voluntarily associated with, and collectively governed, their academic home. Managers might be hired to make sure there was wood for the fireplace and food on the table, but it was clear who ran the show.

Today's University Senates, Academic Councils, General Faculties Councils etc are the lineal descendents of this tradition. They retain supremacy in matters academic (though the definition of that is often contentious) and if academic staff feel that their views are not adequately heeded, they have the additional tool (through unions and faculty associations) of withdrawing their services through strikes or other actions.

In contrast to academic senates, University Boards of Governors tend to focus more on the financial management of the institution, and often contain substantial representation from the business community. They may have the same concerns about reputation as the faculty, but are also very interested in the "bottom line" aspects of online and collaborative education. Since they usually exercise ultimate control over whatever discretionary funds the institution can allocate, the Board must also have faith in the educational enterprise to make it a success.

Colleges typically also have this bicameral structure although the supremacy of the Academic Council or equivalent is not as absolute, and tends to be more advisory. For example, in the Terms of Reference for its Academic Council, Sheridan College says:

> With the Vice President, Academic, Academic Council oversees, plans and reviews college-wide academic changes, policy, procedures and directions. Academic Council provides decisions, recommendations and advice to the Vice President, Academic on issues affecting teaching and learning at Sheridan.
> (source: www.sheridanc.on.ca, accessed July 2000)

In principle, governing bodies such as academic senates provide the *imprimatur* and quality control that prevents individual faculty members, departments etc, from offering courses that are not academically sound. (At least they are restricted from associating the name of the institution with them.) However, the approval procedures are usually geared to a very traditional cycle of course development and review, and a fixed academic timetable. This structure often clashes with the entrepreneurial, market-driven culture that says "it we wait for approval we'll miss the opportunity." Private trainers, although they lack certain resources that Universities have such as prestigious faculty members, have an advantage here because they can move quickly to capitalize on new opportunities.

Equally important is the reluctance at many institutions to "kill" academic programs. It is clear that many University and college courses and entire programs have outlived their usefulness and are running on sheer inertia, often simply because an instructor wants to teach them. They attract small numbers of students, and often serve them poorly. Of course, the needs of students who are currently "in program" must be considered, so they need a reasonable time to complete what they bargained for when they

entered the program. However, in light of the pace of change in certain areas, the termination process will also need streamlining.

Institutions often lack effective mechanisms to review and terminate programs, and where they do exist they are often as labor-intensive as creating new programs. A typical procedure would see the decision to end a program moving through the same review committees that originally approved it. Because of the work involved, moribund and resource-consuming programs are often left "on the books" despite having reached the end of their life cycle.

Suggestions:

1.1.1 Universities and colleges could create a pan-institutional set of guidelines governing online and collaborative activities. While these would of necessity be general, they need not be "motherhood." In fact, the Western Canadian Deans of Graduate Studies created guidelines for the use of distance education courses several years ago. While not perfect, these were certainly viewed as a very useful too.

1.1.2 Individual governing bodies could establish a flexible approval system that is not tied to fixed calendar dates

1.1.3 Individual governing bodies could move to an "honor bar" system in which faculties are trusted to offer online and collaborative learning (let's use OCL for short) activities on a pilot basis. There would be an explicit understanding that these would be reviewed after an initial offering and would not necessarily be continued. The worst that would happen is that a relatively small number of students would emerge with a credential that perhaps was not fully deserved. This is undesirable, but so is the paralysis that typically affects our institutions now.

1.2 Student Access

There are several dimensions to the "student access problem." At one time, we worried about our students' ability to purchase an acceptable computer and to arrange Internet access. This type of infrastructure limitation is largely a problem of the past. Some institutions, e.g. Acadia University,

have required computer ownership for certain programs, and have set up attractive lease/purchase deals. In most parts of Canada, computers are now relatively inexpensive and Internet access, at least at dialup speeds, is available and affordable. Services such as 3web.net and freewwweb.com are offering totally free Internet access if customers are willing to view their advertisements.

A more subtle concern revolves around students' ability to obtain and correctly use a particular piece of software that is required either for online communication or to learn some of aspect of the subject matter. Some online learning systems still require that a "client" be downloaded or other installations be performed. The student must somehow obtain it (on disk, CD/ROM, or perhaps the Internet, and then successfully install it.) Other online learning experiences may require a commercial product such as Mathematica, which might not be readily available to a student. Of course online bookstores are alleviating this problem to some extent.

The deepest remaining issues revolve around student willingness and ability to use online learning software. Just as some people decline the convenience of ATM banking, some learners simply do not want to take online courses. Another segment finds the technology daunting and, in the absence of extensive help desk support, they have a bad experience and abandon it.

Student expectations are closely linked to the issues of access. Some students sign up for an online program knowing that they will be participating in virtual education. As long as the access is good (e.g. 24/7, with rapid feedback) they are often satisfied. The problem arises when students are given online instruction when they expected more face to face interaction. Putting aside the intellectual and pedagogical quality, they are inclined to feel shortchanged by being "taught by a machine instead of a human being." Indeed, this has been the cause of student unrest at several campuses.

Suggestions:

1.3 Physical infrastructure capacity

As recently as 1997, the late Dale Landry, former President of the Southern Alberta Institute of Technology, expressed an ambition to "double

the number of students at his institution without adding any buildings." Driving by the campus today one is struck by the array of construction cranes creating the very new buildings he wanted to avoid. Clearly, for some learners and some type of learning, face to face, single institution instruction will remain the desired mode. Even distance delivery institutions such as Athabasca University, find themselves in need of bricks and mortar facilities, and in some ways limited by the lack of such infrastructure. Faculty members, registrarial staff, etc. still need a place to work and many want to do this in a fairly traditional setting.

In the online world, there are new infrastructure needs including the capacity to host online courses, serve up web pages, and answer electronic inquiries. Typically, these require computers, content and human staff to maintain them. However, it is important to note the emergence of "education service providers" (examples: www.eduprise.com, www.ecollege.com) that will, for a fee, outsource these functions. They may even promise a revenue stream back to the institution based upon the value of the "eyeballs" of campus communities that can be sold to eager advertisers. While they are a relatively new phenomenon, ecollege.com alone claims to have successfully implemented over 150 "campus portals."

In theory these companies could provide the entire infrastructure Canada's colleges and universities require – but at a price. On a recent visit to the headquarters of Caliber Learning Network, Inc. (founded in 1996 as joint venture of Sylvan Learning Systems and MCI WorldCom,) the author was quoted a fee of $10/student/hour/month for hosting course material. Doing the math for a mid-sized University like the University of Calgary, assuming 22,000 FTE students taking an average of five 39-hour half courses per semester for two semesters a year -- gives a whopping $85,000,000 US annual hosting bill!

Even with volume discounts, and discounting for the fact that not all content would be online, this would still be a very significant expense. It also does not begin to include the people time required to prepare the content in the first place.

Suggestions

1.2.1 There is no reason why Canadian companies and institutions cannot get into the ESP business, in fact some are already doing so. The problem is one of scale. Caliber Learning Network

claims such large and prestigious clients as Johns Hopkins University and the Wharton School. Canadian entities can, of course, market their services worldwide, and probably should. Yet there is some advantage to having the ability to walk down the hall or down the street and meet with your ESP.

1.2.2 Because of a lack of standards (see 1.3 below) the people entering the ESP market are often endorsing different learning platforms. This may be good in a "survival of the fittest" sense but may also result in the inability of any to survive in a highly competitive marketplace. It would be useful if Canadian institutions could agree on a common eLearning platform, if only for a year or two at a time.

1.3 Bandwidth

The ability to move data at reasonable speeds used to be a major technical limitation in Canada. With the advent of fiber optic cable, and services such as DSL and cable internet, more and more Canadians are getting high bandwidth service. This is not to say that everyone is happy. There are issues of cost (high bandwidth can cost several times basic dialup access,) availability in some parts of Canada, and the lack of low-bandwidth alternatives. As just one example, an attempt to access the Flash technology-using homepage of the Acadia Centre for Virtual Learning from a 14.4 modem connection was frustrating. It took many minutes to load the "splash page," and there was no apparent way to speed up the process. The page looks great when it arrives, but for many people, the wait would simply be too long

In the United States, Congress inserted a provision in the Telecom Act of 1996 directing the Federal Communications Commission and state public utility commissions to ensure that elementary and secondary schools, libraries and rural health care providers are given substantial discounts off the commercial rate for telecommunications services.

With the advent of the Internet, and the dawning of services like IP telephony and web-based videoconferencing, the need for expensive phone company services is decreasing

anyway. However, this provision in the 1996 legislation is widely regarded as having hastened the adoption of eLearning in the US.

Suggestions:

1.3.1 Urge institutions to be aware of the wide range of bandwidth available to users of their web pages.

1.3.2 Create bandwidth-flexible learning opportunities; e.g. discard the video if bandwidth is too low. The technical facilities to do this exist but the educational aspects need careful consideration.

1.3.3 Petition for a CRTC-mandated discount policy like the US ERate or equivalent consideration from the providers.

1.4 Interoperability Standards for Applications and Equipment

The interoperability situation has improved greatly in the last few years, with many applications functioning well on both Netscape Navigator and Internet Explorer, and across Windows, Macintosh and Unix platforms. However issues remain about specialized peripherals (web cameras, video cards) and, perhaps more significantly, in performance. Without adequate bandwidth *and* hardware at both ends, teaching with technology quickly becomes a frustrating experience.

The software side of the equation is even more serious, since most software manufacturers seem to have deliberately engineered their products to use their own specialized features. If they do inter-operate, they often do so at the expense of some important functionality. Learners report great frustration attempting to cope with these issues, especially if they do not have computer background.

There are some hopeful signs. For example, WebCT (www.webct.com, created in 1995 at UBC by Murray Goldberg,) has captured a major market share in the asynchronous learning marketplace. They currently claim over 6,600,000 learners worldwide enrolled in courses using

WebCT. The Java-based Centra product from Centra Software (www.centra.com) has become something of a *de facto* standard for synchronous conferencing, at least at a number of Alberta universities.

Suggestions

1.4.1 That province-wide, or even Canada-wide educational licenses be sought with the "best of breed" eLearning software providers. (Alberta and BC have had WebCT licenses and Ontario recently signed up Obviously this choice will be contentious, and individual institutions may still want to "go their own way" for all sorts of reasons. However, the economic advantage of a widely accepted and inexpensive platform, combined with a large supply of exchangeable courseware, may be quite compelling. In fact, since educational licenses for e.g. WebCT are already fairly reasonable, the availability of suitable courseware may well be the driving factor in this.

1.5 Educational quality is one of the most elusive terms to define and it's even harder to get people to agree on how to judge it. An attempt several years ago to create a Western Canadian Telecourse Consortium ("WUTC") foundered largely on quality concerns. Large, prestigious institutions found it hard to agree to give blanket approval to courses from smaller, less prestigious schools. Yet the full transferability of academic credit was a fundamental principle, necessary for the consortium to make any sense.

At the detailed level, consider a videocourse in Introductory Economics that was proposed by a WUTC member institution. The proposed content was circulated and several other institutions said that they would not support the course because "it doesn't meet our standards for Introductory Economics." As it happens, there are philosophical slants to economics departments, which manifest themselves even in the first year course. When the departments that reviewed the proposal and found it "lacking quality" what they were really doing is expressing philosophical disagreement with the choice of content and emphasis.

One might argue that surely this would not happen with Computer Science or Calculus. However, Computer Science departments do actually vary quite a bit in what they teach, which programming languages they use, etc. As for Calculus, that is indeed a fairly homogenized field of study. However, since there are no such things as "Calculus for Canadians", many educators with access to substantial resources are always working on Freshman Calculus. Although it was not (to my knowledge) seriously proposed as a WUTC course, Calculus would have been unlikely to compete with other productions unless very substantial resources were committed to it.

The fundamental issue, of course, is the autonomy of provinces, institutions, faculties, departments and even individual faculty members to define what should and should not be taught in their classrooms. Some progress has been made at the secondary level, e.g. in developing standardized Math and Science curricula, but Universities and Colleges pose a much more difficult challenge.

There are, however, models we could emulate. A graduate of any accredited Canadian engineering or medical school is automatically eligible for the applicable membership in their provincial professional organization, and ultimately, for professional registration. This is because there are accrediting bodies that maintain the standards through site visits, etc.

There has been an attempt, driven by the (self-described) "voice of and champion of the computer industry in Canada," the Canadian Information Processing Society (www.cips.ca) to nudge computer science departments toward a common standard of quality through a voluntary accreditation. They also have a program to certify computer professionals:

Accreditation:

A standard level of professional knowledge among all IT professionals relies on standard education approaches and curricula. CIPS has developed a rigorous process to examine and accredit university computer and information science programs and college information technology programs as high quality IT programs.

Certification:
Certification contributes to a strong professional image, profile and credibility, high standards of practice and ethics, public protection and individual career development. Certification is accomplished through the Information Systems Professional of Canada designation (I.S.P.). The CIPS Certification Council is dedicated to establishing a registered and regulated information systems profession in Canada as well as to establishing the groundwork for a fully licensed profession in the future

The CIPS programs have been in existence for over a decade and are best described as "modestly successful." Under "University Computer Science Programs" Acadia University, the University of Alberta, the University of Western Ontario, York University, and (some programs) at the University of Waterloo are among those listed as currently accredited. Yet McGill and Queens Universities are shown as having let their accreditation lapse, and the University of Toronto and UBC, certainly both major forces in Computer Science in Canada, has not ever participated.

Suggestions

1.5.1 The CIPS model, or another like it, could be used as a proving ground for more standardization of postsecondary curriculum, in this case in Computer Science. If some desirable resources (research chairs, infrastructure grants, etc.) were tied to substantially offering a standard curriculum, at least some institutions would take the hint and work together. They could produce excellent online learning modules and share them. Of course, the process would need to be credible in the eyes of the academics. However, the proof that this can be accomplished comes from the engineers and doctors.

1.5.2 If the voluntary accreditation approach works for computer science, arguably a very important and somewhat variable discipline, it could be extended on a voluntary basis to other subject areas. Some institutions would always tend to opt out, but, particularly if "join the club" was made easy and the door kept open, many institutions may eventually avail themselves of some of the jointly produced resources. Of course, there could also be an export market here. The Software Human Resources Council (www.shrc.ca) has created a Canadian "Occupational Skills Profile Model" which it is selling with some degree of success.

1.6 Intellectual Property and Copyright Ownership

This is a true ticking time bomb as institutions rush to create online and collaborative courseware. Who owns it?

Most institutions have an intellectual property policy that provides some definitions and a general framework. There is considerable variability among institutions. At the University of Calgary, for example, the creator of the work owns it, though the University might claim rights to part of all of it, e.g. the course title and calendar description. Of course, an employee can explicitly sign away rights, and this is often done in return for additional remuneration.

At the Technical University of BC, "Canada's Newest University," there is an explicit clause in the interim policy on IP that says:

> 3.1.2 Except as provided for in article 7, the University is the owner of Intellectual Property rights in works that result from duties specifically assigned to University Members by the University in the course of employment.

This clause could easily be interpreted to mean that instructors who produce courseware as part of their normal employment are giving up their rights (other than moral rights) to the University. Article 7 further qualifies this by saying that the Creator will own works where there is a "true innovation or creation of new knowledge." This policy could of course lead of differing interpretations, and possibly legal battles.

A further important clause in the Tech BC Intellectual Policy (found at http://www.tu.bc.ca/admin/policies/interim.g006.intellectual-property.pdf, accessed July, 2000) is the granting to the University of a perpetual no cost license to use the work for its own teaching or research purposes, though it restricts the use of it to internal use, explicitly excluding "use outside the University without the consent of the Creator in a distribution agreement."

Suggestions

1.6.1 Institutions should be provided with standard, well written contracts and policies that they can use to ensure that

intellectual property rights are being handled in the way they wish them to be. Several different forms might be necessary to cover various philosophical positions.

1.6.2 Institutions should be encouraged to use these standard forms to facilitate interchange of courseware.

1.6.3 The concept of "internal" vs. "external" use needs to be clarified. If a University teaches a group of engineers from company X, on its own premises, which is that? Does it matter if they are two engineers from company Y in the class?

1.6.4 International legal and copyright differences issues should be addressed, preferably in an online information resource that could perhaps be maintained by Industry Canada. This will facilitate the marketing of Canadian eLearning materials abroad.

1.7 Human Resource Issues

Many Faculty members have expressed concerns about eLearning and collaboration with other institutions.

Fear of Loss of Position

At the most basic level, some Faculty members envision themselves being "automated out of work" as machines take over more of the teaching. Particularly at the college level, where research is not usually part of the workload, there may be some justification here. The University of Calgary, for example, eliminated first year chemistry labs in favor of a "tubeless lab" using a videodisk. Part of the saving was chemicals but there was also the time of human beings who used to care for the lab and the students in it.

In general, however, we are facing a Faculty shortage and the last thing most institutions would want to do is to lose good people. There are presently 22 vacancies in Computer Science at the University of Calgary alone and many more across the country. Even in disciplines that are not in such high demand, the demographic bubble of a retiring professorate that started in the 1960s is starting to hit.

The problem is compounded by the anticipated boom in student numbers, and not just from the "double cohort" in Ontario. According to

a report provided to the author by Nortel Networks:

According to the U.S. Department of Education, more than 16 million people will be enrolled in an institution of higher education in the year 2010. This is a 13% increase over the next decade. Part of this can be attributed to the population increase in the United States. In 1999-2000 there were 2,840,170 new high school graduates. This number is projected to be 3,128,544 by 2010.

Those US figures and trends are mirrored in the Canadian population. These trends, coupled with the inability of machines to really answer student questions, mean that most good Faculty have no need to worry about job security.

Suggestion

1.7.1 Publicize the information about demographic trends to University staff, administrators and governing bodies.

A second cause of "faculty resistance" is unfamiliarity with the tools. Even if you wanted to build a house, if you were simply provided with the hammers, saws and lumber you would probably find the task daunting. Many faculty, particularly those who did not "grow up with computers" feel this way about teaching with technology. They are comfortable with chalk or overhead transparencies in hand, and wish that they would be able to continue in that mode of teaching until retirement.

Suggestions

1.7.2 Provide high quality training and education in the new "tools of the teaching trade." As an example, Bakersfield College, in California, has a lab for instructors to develop technology on their own, and for certain hours of the day, they staff it with students who are trained in the technology.

1.7.3 Provide high profile role models. Again, at Bakersfield College, the President was known for adopting the technology and using it in his own teaching. This made a world of difference in getting the other faculty to accept it.

Consortia often raise the hackles of faculty members because they feel

a sense of loyalty to their departments. However, there are some very successful examples where consortia have accomplished things that no one institution could have hoped for. As an example, Studio Physics originated at Rensselaer Polytechnic Institute but had partners including other academic institutions, publishers, and computer manufacturers. One observation often made by Jack Wilson of RPI, the originator of the "studio" idea, is that it is better to get people together by discipline than to have the "techies" try to wow them. The practitioners can then decide "what would we like to do that we can't do now" (e.g. site visit inside a nuclear reactor) and obtain the suitable resources to accomplish that.

Suggestions

1.7.4 Try to build consortia along disciplinary lines.
1.7.5 Put the academic purpose about any technological goals.

Jack Wilson also notes in a paper available online (http://www.educause.edu/nlii/articles/wilson.html, accessed July 2000) that students need to be given more control over their learning:

> The studio format is designed to transfer responsibility from the faculty to the student: the focus is on student problem solving and projects and not on presentation of materials. Of course, it's possible to reduce contact hours and save money, but without the use of IT, and the redesign of the instructional process, quality would most certainly decline. With technology, RPI is able to serve the same number of students at a lower cost--and serve them more effectively.

Suggestions

1.7.6 As much as possible, transfer responsibility for learning in an online or collaborative environment to the student, with adequate support tools.

It would be disingenuous not to consider the very real possibility of a new class of "online teaching faculty," since they are already emerging. On line tutor/advisor/mentors, who may work from their home or be answering five or six people at a time, are becoming commonplace. They seem to learn their skills on the job, but there is certainly potential to provide more formal training to them.

Suggestions:

1.7.7 Develop training for "online learning support people" and market it effectively.

Many of the observations about faculty members also apply to other institutional staff.

2.0 Working in Consortia

The author has formed consortia, joined them, fought with them, and helped disband them. They are certainly not an unqualified "good thing." However, the reality is that we may need to work in cooperation with other institutions both for resource scarcity reasons and because the end quality, delivered to the learner, will be better.

2.1 Lessons Learned from Working in Consortia

2.1.1 Different partners may have different goals. In a relationship with Motorola University, we learned that they had certain quarterly reports to file that were very important to their reputation in the company and their compensation. They learned that we relied heavily on academic journal publications for our career progress. This simple exchange of "what do I want to get out of this?" improved the relationship significantly.

2.1.2 Consortia can be more trouble than they are worth. After years of having complaints about the courses in a particular program, and with no real control over them since they were developed by other partners, we decided to drop out of the consortium and go it alone. We still feel that was the best route both for us and for our learners.

2.1.3 Get it in Writing!
Formal contracts are important, even between "friendly institutions" to define roles and

responsibilities. All of the major consortia that are assembling in Canada (e.g. Canadian Virtual University) have extensive paperwork developed for just this reason.

2.1.4 Include a "sunset clause."
It forces periodic review, keeps everyone on their toes, and sends a signal that quality really matters. You can always extend the contract if that's warranted.

2.1.5 Automate as much as possible.
Successful consortia such as Contact North and the Campus Manitoba use technology well, e.g. for transfers of grade information etc. This is clearly an important economic issue as well as a customer service one.

2.1.6 Advertise together in a consistent and clear format.
Contact South is already doing this, see e.g. http://www.contactsouth.org/allcert.htm

3.0 In-kind services

With the introduction of competition in telecommunications, it seems reasonable that someone would start offering excellent deals to institutions to get their business. This has happened to some extent, though it has been the startup (vs. the ex-monopoly) providers who have usually made the most aggressive, and also probably most risky, proposals.

The US model of a mandated eRate may make sense for Canada. Also, as we move voice telephony to the Internet, voice traffic will be less and less of revenue stream for the Telcos. They will rely on billing us for new advanced services, perhaps not yet invented.

Suggestions:

3.1 Consult with telecom providers to determine what they can do in terms of rates

3.2 Potentially seek government action along the lines of *Telecommunications Act of 1986.*

Other in-kind services

Many technology vendors are extremely eager to partner with institutions. Of course we want to choose well, but here's the lineup of partners that Humber College has acquired for their "College of e:"

Microsoft, Dell, SAP. Macromedia

The catchy name for the *College of e*, coupled with big league support, has ensured that this program is always full, and the administrations say they have excellent job prospects when they complete.

Perhaps the most importance service that customers can provide is market intelligence, as they bring us trends and developments that might affect the business.

4.0 How to Use Existing Government Programs

Alberta has over four years experience in providing targeted funding to eLearning projects through the "Learning Enhancement Envelope." Initially controversial, it has become almost taken for granted. The program provided a total of $30 million over three years for technology integration: $10 million for each year, beginning with the 1996-97 fiscal year. It funded a wide range of innovative projects across the province.

Ontario has announced a round of grants in the "Superbuild Fund" and of course eLearning and collaboration figure prominently in that initiative. Just announced in October 1999, the $742 million fund is intended "to build and modernize (the provinces education infrastructure) in anticipation of an expanded student population. The immediate crunch comes from the "double cohort" but there is certainly long-term growth pressure as well. Clearly, some eLearning projects would minimize the need for building physical infrastructure and the success grants in the first round do take into account that possibility.

Other provinces also have, or are considering, their own funds. For example, Newfoundland and Labrador have a not for profit corporation called Operation Online, Inc.

Canarie has several relevant programs, include the Learning Program and the Multimedia Learnware Program. They have tended to reward the winners in that dependable people who have a track record in using technology received grants quite often. There is certainly a need to occasionally "bet on your new stars" to ensure a supply of future innovators.

This report has focused on learning delivery because that is the most consumer-oriented service, and where it all begins. However it is worth noting that research in the field of Workplace Learning is booming, and that some monies may profitably spent in that pursuit. Programs like the Canadian Foundation for Innovation (www.cfi.ca) might be tapped for support. The Office of Learning Technologies runs an extensive grant program, as does the Telelearning Network Inc., which manages the Vancouver-based Telelearning NCE.

In closing, it seems appropriate to speculate on what success would look like if we do find the right strategies to build eLearning in Canada. Clearly, we will not dominate all niches. However, we should get the majority of the business that is Canada-specific, and more than our share of international business. Canada's reputation abroad, derived from such historical sources as the work of Dr. Norman Bethune, puts us in a favored position to work with other countries. The revenue steam from even a portion of the learners in China or India can go a long way to addressing the vexing question of "how will we pay for this?" Finally, the prestige associated with quality learning programs coming from Canada will further enhance our reputation, making the sale easier the next time around.